Journal of Physics: Conference Series 2011 vol.324 N1

# Stress-induced orbital alignment of the Cr 2+ centers in KZnF 3 crystal

Gracheva I., Nikitin S., Yusupov R.
*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

## Abstract

Observation of the intense linear dichroism spectrum on the 5E g → 5T 2g transition of Cr 2+ ions in KZnF 3 crystal under uniaxial stress is reported. The model is proposed which assigns the observed spectrum to alignment of the Jahn-Teller Cr 2+ centers, occurring due to redistribution between the minima of the adiabatic potential that become inequivalent under uniaxial stress applied along the C 4 axis of the crystal. Analysis of the observed dependencies of the dichroism on the applied stress has allowed to estimate the values of the electron-strain interaction constant V ES = 32900 ± 1200 cm -1 and the inversion splitting δ = 9.2 ± 1.3 cm -1, and also to characterize the random strain field.

http://dx.doi.org/10.1088/1742-6596/324/1/012030